

WHAT IS CLAIMED IS:

1. A method of forming an encryption key that has a number of bytes, the method comprising the steps of:
  - 5 reading a sequence of bytes from a memory, the sequence of bytes having a number of bytes that is greater than the number of bytes in the encryption key; and
  - reducing the number of bytes in the sequence of bytes to be equal to the number of bytes in the encryption key.
- 10 2. The method of claim 1 wherein the reducing step further includes the steps of:
  - assigning each byte in the sequence of bytes to one of a number of groups so that each group has one or more bytes, the number of
  - 15 groups being equal to the number of bytes in the encryption key; and
  - reducing the number of bytes in each group to a single byte.
3. The method of claim 2 wherein the reducing the number of bytes in each group to one byte step further includes the steps of:
  - 20 determining a base-N value for each byte in a group;
  - summing together the base-N value of each byte in the group to form a base-N summed value; and
  - dividing the base-N summed value by the number of bytes in the group to determine a base-N average value, a base-2 representation of
  - 25 the base-N average value defining the single byte.
4. The method of claim 3 wherein the base-N is base-10.

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5. The method of claim 1 and further comprising the steps of:  
forming the sequence of bytes; and  
storing the sequence of bytes in the memory.

5 6. The method of claim 5 wherein the sequence of bytes is  
formed by digitizing a unique image.

7. The method of claim 6 wherein the unique image is a  
magnified image of an interior of a gem.

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8. The method of claim 5 wherein the sequence of bytes is  
formed by digitizing a recording of a unique sound event.

9. The method of claim 8 wherein the unique sound event is  
15 a recording of a voice stating a phrase.

10. The method of claim 2 and further comprising the steps of:  
forming the sequence of bytes; and  
storing the sequence of bytes in the memory.

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11. The method of claim 10 wherein the sequence of bytes is  
formed by digitizing a unique image.

12. The method of claim 11 wherein the unique image is a  
25 magnified image of an interior of a gem.

13. The method of claim 10 wherein the sequence of bytes is  
formed by digitizing a recording of a unique sound event.

14. The method of claim 13 wherein the unique sound event is a recording of a voice stating a phrase.

5           15. The method of claim 1 wherein the number of bytes in the sequence of bytes is a multiple of the number of bytes in the encryption key.

10           16. The method of claim 15 wherein the reducing step further includes the steps of:

assigning each byte in the sequence of bytes to one of a number of groups so that each group has one or more bytes, the number of groups being equal to the number of bytes in the encryption key; reducing the number of bytes in each group to a single byte.

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17. The method of claim 16 and further comprising the steps of:

forming the sequence of bytes by digitizing a unique image; and storing the sequence of bytes in the memory.

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18. The method of claim 16 and further comprising the steps of:

forming the sequence of bytes by digitizing a unique sound event; and

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storing the sequence of bytes in the memory.

19. An apparatus that forms an encryption key that has a number of bytes, the apparatus comprising:

means for reading a sequence of bytes from a memory, the sequence of bytes having a number of bytes that is greater than the number of bytes in the encryption key; and

means for reducing the number of bytes in the sequence of bytes  
5 to be equal to the number of bytes in the encryption key.

20. The apparatus of claim 19 wherein the means for reducing further includes:

means for assigning each byte in the sequence of bytes to one of  
10 a number of groups so that each group has one or more bytes, the number of groups being equal to the number of bytes in the encryption key; and

means for reducing the number of bytes in each group to a single  
byte.

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